TV90

For Non-Ferrous & Plastic Materials

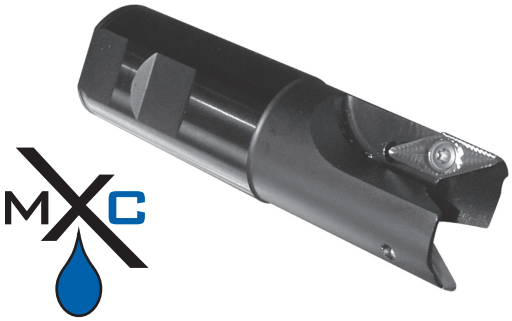
Application

High speed milling of:

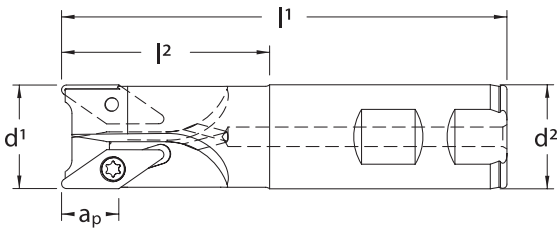
- Aluminum alloys
- Copper alloys
- Plastic materials
- Can be used for edge and slot milling, as well as axial plunge milling
- Excellent for deep cavity work
- Suitable for soft non-ferrous materials
- Up to .500" depth of cut
- Exceptionally high feed rates (over 200 IPM)
- Maximum metal removal on any machine
- Wide range of product available

Features / Benefits

- High positive geometry insert with wave shape topography eliminates edge build-up and provides efficient chip removal
- End mills designed with coolant bore holes directed toward cutting edges
- Insert grade TK10MP is specifically designed for the machining of aluminum and non-ferrous materials that require high cutting speeds



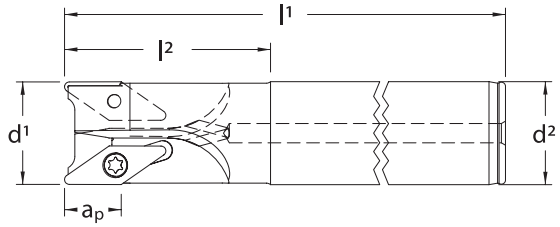
New Addition!



End Mills Optimized Design for Aluminum

Designation	d¹	d²	l¹	l²	Max. ap	Max Plunge	flutes	Insert	Insert Screw	Wrench
TVP90-0750C	.750	.750	3.28	1.25	.40	.200	2	VPGT-221-ALM	LF-89972	214.80.866 (S/D) 214.80.011 (F/T)
TVP90-1000XC	1.000	1.000	4.28	2.00	.40	.200	3			
TVP90-1000C	1.000	1.000	4.28	2.00	.53	.250	2	VPGT-333-ALM VPGT-33PPFR-ALM*	LF-57106	214.80.824 (S/D) 214.80.012 (F/T)
TVP90-1250C	1.250	1.250	4.28	2.00	.53	.250	2			
TVP90-1500C	1.500	1.250	4.28	2.00	.53	.250	3			
** To provide necessary clearance when using VPGT-33PPFR-ALM inserts, the cutting body must be relieved*										

Remember to use COPASLIP® anti-seize compound on all insert screws



Extra Length End Mills Optimized Design for Aluminum

Designation	d¹	d²	l¹	l²	Max. ap	Max Plunge	flutes	Insert	Insert Screw	Wrench
TVP90CY-0750-XLC	.750	.750	6.75	1.25	.40	.200	2	VPGT-221-ALM	LF-89972	214.80.866 (S/D) 214.80.011 (F/T)
TVP90CY-1000X-XLC	1.000	1.000	8.00	2.00	.40	.200	3			
TVP90CY-1000-XLC	1.000	1.000	8.00	2.00	.53	.250	2	VPGT-333-ALM VPGT-33PPFR-ALM*	LF-57106	214.80.824 (S/D) 214.80.012 (F/T)
TVP90CY-1250-XLC	1.250	1.250	8.00	2.00	.53	.250	2			
TVP90CY-1500-XLC	1.500	1.250	8.00	2.00	.53	.250	3			
** To provide necessary clearance when using VPGT-33PPFR-ALM inserts, the cutting body must be relieved*										

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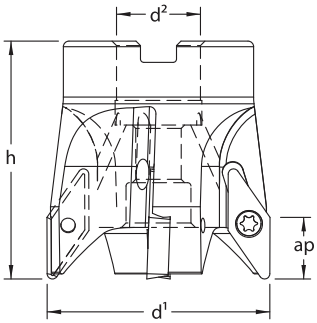
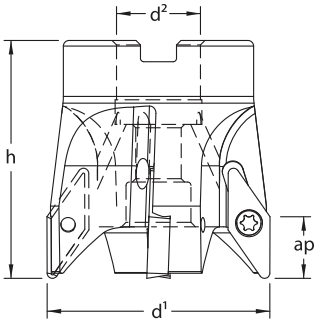


Face Mills Optimized Design for Aluminum

Designation	d¹	d²	h	Max. ap	Max Plunge	No. of inserts	Insert	Insert Screw	Wrench
Through Coolant Enabled							VPGT-333-ALM VPGT-33PPFR-ALM*	LF-57106	214.80.824 (S/D) 214.80.012 (F/T)
TVP90-2000-MC	2.00	.750	2.12	.53	.250	4			
TVC90-2000-MC	2.00	.750	2.12	.59	.300	3	VCGT-43.58-ALM	C-1250	214.80.824 (S/D) 214.80.076 (F/T)
TVC90-2500-MC	2.50	1.000	2.12	.59	.300	4			
TVC90-3000-MC	3.00	1.000	2.12	.59	.300	5			
Standard Non-Through Coolant									
TVC90-4000	4.00	1.500	2.12	.59	.300	6			
** To provide necessary clearance when using VPGT-33PPFR-ALM inserts, the cutting body must be relieved*									

Remember to use COPASLIP® anti-seize compound on all insert screws



Face Mills Optimized Design for Aluminum

Designation	d¹	d²	h	Max. ap	Max Plunge	No. of inserts	Insert	Insert Screw	Wrench
Through Coolant Enabled							VCGT-43.58-ALM	C-1250	214.80.824 (S/D) 214.80.076 (F/T)
TVC90-2500AL-3-MC	2.50	1.000	2.12	.59	.300	3			
TVC90-3000AL-3-MC	3.00	1.000	2.12	.59	.300	3			
Standard Non-Through Coolant									
TVC90-4000AL-4	4.00	1.500	2.12	.59	.300	4			

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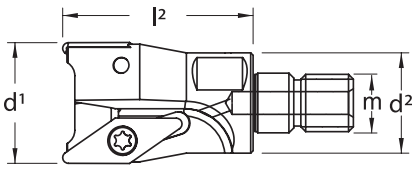


Screw-On Milling Cutters Optimized Design for Aluminum

Designation	d¹	d²	l²	m	Max. ap	Max Plunge	flutes	Insert	Insert Screw	Wrench
Standard Non-Through Coolant										
TVP90-0750-TS	.750	.709	1.18	M10	.40	.200	2	VPGT-221-ALM	LF-89972	214.80.866 (S/D) 214.80.011 (F/T)
Through Coolant Enabled										
TVP90-1000XC-TS	1.000	.827	1.57	M12	.40	.200	3			
TVP90-1000C-TS	1.000	.827	1.57	M12	.53	.250	2	VPGT-333-ALM VPGT-33 PPFR-ALM*	LF-57106	214.80.824 (S/D) 214.80.012 (F/T)
TVP90-1250C-TS	1.250	1.142	1.97	M16	.53	.250	2			
TVP90-1500C-TS	1.500	1.142	1.97	M16	.53	.250	3			

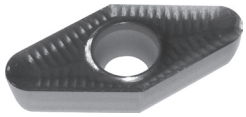
** To provide necessary clearance when using VPGT-33PPFR-ALM inserts, the cutting body must be relieved*

Remember to use COPASLIP® anti-seize compound on all insert screws

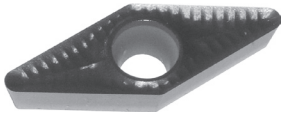
TK10M - Uncoated K10/C2 wear resistant grade, suited for machining of non-ferrous materials, high temp. alloys as well as synthetic materials including fibreglass, graphite and plastic. Recommended to run with coolant only when materials require wet machining.

TK10MP - TiAlN coated K10/C2 grade designed for high speed machining of aluminum and other nonferrous material. Recommended to run with coolant.

TK10TB - PVD diamond film coating offering greatly extended tool life over conventional carbide. Recommended specifically for synthetic materials such as graphite.



VCGT



VPGT

TV90 Inserts

Designation	l	s	r	d	d¹	a	TK10MP Coated	TK10TB Diamond Coated	TK10M Uncoated
VCGT-43.58-ALM	.870	7/32	.118	1/2	.216	7°	●		●
VPGT-221-ALM	.437	1/8	1/64	1/4	.110	11°	●	●	●
VPGT-333-ALM	.654	3/16	3/64	3/8	.173	11°	●	●	●
VPGT-33 PPFR-ALM	.654	3/16	--	3/8	.173	11°	●		●